

of a disrupted acapsular nucleus, and under no circumstances ciliated. In each is to be seen a villous appendage, contractile vesicle, and nuclear spot. Length from $\frac{1}{3330}$ th to $\frac{1}{1660}$ th of an inch.

Fig. 18. *Amæba* engaged in tearing pieces out of an *Actinophrys* by means of its pseudopodia. *f, v*, food-vacuole containing a mass so torn off.

N.B.—These figures, although originally drawn to one uniform scale, are only uniform here as regards the relative proportions of the structure in each example, since it became necessary to modify the size of the various figures in order to accommodate them in a single plate. I would avail myself of the opportunity, however, to express my conviction that variation in the dimensions of the Rhizopods generally is so great, and so dependent on purely accidental conditions—that is to say, on conditions involving no physiological difference in the animal—that they ought to be allowed no greater weight in an attempt at classification than the variation in the length of a blade of grass or the height of a thistle.

Erratum in Dr. Wallich's paper contained in the November Number of 'The Annals.'

Page 335, fifteenth line from bottom, for "*Chilodontes*" read "*Chilodons*."

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

Feb. 24, 1863.—E. W. H. Holdsworth, Esq., in the Chair.

ON A NEW GENUS AND SPECIES OF LEAF-NOSED BATS IN THE MUSEUM AT FORT PITT. BY ROBERT F. TOMES.

In a collection of Bats preserved in spirit, and forming part of the Museum at Fort Pitt, Chatham, which has been submitted to my examination by Dr. Sclater, is one which constitutes a new and well-marked genus of the *Phyllostomidæ*, or Leaf-nosed Bats of the New World. It is more nearly allied to the genus *Macrotis* than to any other; but differs from it, among other respects, in having its lance-shaped nose-leaf developed to an enormous extent. I characterize and name it as follows:—

LONCHORHINA, gen. nov.

Top of the head somewhat elevated; face depressed; facial crests complicated, consisting of a very long and pointed posterior leaf, in front of which are two pits, more or less surrounded by prominent fleshy excrescences; lower lip with a smooth triangular space in front; ears long and broad; longest finger with four phalanges; wing-membrane extending to the distal extremity of the tibia, and attached to the os calcis; tail extending to the whole length of the interfemoral membrane, as in the genera Macrotis and Vespertilio.

The posterior lanceolate facial leaf is in this Bat of great length, being fully as long as the head of the animal; it is pointed, and has

a very distinct midrib. In front of this leaf is a deep pit, which is divided into two by a ridge which is continuous with the central rib of the leaf; in the bottom of the pits thus formed are the nostrils, which are small and ovoid. The septum between them is produced anteriorly, and developed into a prominent and trifoliate fleshy excrescence, which almost conceals the pits behind; it has a central or upright lobe, exhibiting outwardly a rounded footstalk surmounted by a flattened top, the edge of the flattened summit being directed upwards and having five very slightly prominent, but very distinct, denticulations. Besides this central lobe there are two lateral ones, which present a thin edge externally, and are continuous with each other across the bottom of the central one. Where this horizontal ridge runs across the central lobe, it is produced into a distinct point or tubercle. On each side of the pits, behind the trifoliate leaf, is a prominent, acutely conical, vertical projection about a line in length. Below the trifoliate leaf is a transverse hollow, divided vertically by a faintly marked septum, and below this is another transverse leaf, forming the lower boundary of the hollow; this leaf is but slightly prominent, and has its ends curved upwards and terminating in two warty excrescences contiguous to the two acute projections near the nostrils. Below this is a flat space, constituting the upper lip.

The lower lip has a large central space of a triangular form, which is naked, and bounded laterally by a broad, smooth, and somewhat elevated margin; at its inferior point is a single small wart, and in the middle, forming the front of the lip, is an enclosed granulated space.

The ears are as long as the head, broad and pointed, with the lobular parts much developed, and extending forward almost to the corner of the mouth. Tragus more than half the length of the ear, tapering evenly to a subacute point; near the base, externally, is a prominent though somewhat obtuse angle, and above this a notch, forming another angle, more acute, but less prominent, than the other; above the notch there is no angle, but a rounded and slightly prominent part, and from this to the tip the tragus tapers pretty evenly. The auditory opening is partly surrounded (posteriorly) by a prominent fleshy ridge of a lobular form, which will fold forward and completely close the opening.

The longest finger is composed, as in all the Phyllostomidæ, of four phalanges; the thumb has the two phalanges of nearly equal length. The wing-membrane extends barely to the distal extremity of the tibia, which it crosses over, in front, and is attached to the base of the *os calcis*, somewhat as in the genus *Natalus*.

The tail is long, but composed of only nine joints, and extends the whole length of the interfemoral membrane, as in the genus *Vespertilio*. The feet are large, with the toes of equal length, and the claws long and hooked.

The skull in its general outline bears considerable resemblance to that of *Macrotis*; but the cerebral region is more elevated, and the facial part more depressed. It is so much depressed just at the posterior boundary of the nasal bones as to occasion a deep hollow

or longitudinal pit. The nasal bones are very differently formed to those of *Macrotis*, being very much arched from the fore to the hinder part. The maxillary bones are considerably inflated between the nasal opening and the orbits. All the facial part of the skull is much less compressed than in *Macrotis*.

Dentition:—Inc. $\frac{4}{4}$; Can. $\frac{1-1}{1-1}$; Premol. $\frac{2-2}{2-2}$; Mol. $\frac{3-3}{3-3} = \frac{16}{16} = 32$.

The middle *upper* incisors are large, flat, and somewhat pointed; the lateral ones minute and pointed, and with a posterior lobe near the base; the canines are rather small and acute; the first premolar is very small, roundish, and with two cusps, the anterior one being the most prominent; the second premolar is very prominent, and has the same carnassial form which is so common in the Chiroptera.

The lower incisors are symmetrically arranged, rather small, and flat, with their edges somewhat lobated; the canines are slender, straight, and with a distinct cingulum; the first premolar is smaller than the second, conical, acute, and with a slightly projecting posterior lobe near the root; the second premolar is rather long, angular, and acute, with a well-marked cingulum.

The tongue is thick and short, with six well-marked, transverse, curved ridges, which are most distinct on the front part; and behind these are indications of others. All the upper surface of the tongue is clothed with fine points, which are directed backward, like those on the tongue of the *Felidæ*.

LONCHORHINA AURITA, n. s.

Nearly the whole of the face is hairy, the hair having the same quality and colour as that of the back; the nose-leaf and fleshy excrescences are naked, but a few hairs spring from the edges of the former near the base; ears hairy behind for three-fourths of their length; inside they have a distinct band of hairs on the inner margin, which does not extend further than three-fourths of their length from the base; and there is another, but smaller, band of hairs inside the lobular parts.

The fur of the upper parts is nearly confined to the body; but there is a little scattered on the humerus and the contiguous end of the forearm. Beneath, there is a little whitish hair powdered on the membrane near the flanks and forearms.

All the upper parts are light reddish brown, the fur nearly unicolor; beneath similar, but duller in colour, and paler on the pubes. Cutaneous system dark reddish brown.

Length of the head and body	2	$\frac{3}{4}$
——— of the tail	1	9
——— of the head	0	$9\frac{3}{4}$
——— of the ears	0	$8\frac{3}{4}$
——— of the tragus	0	7
Breadth of the ears	0	8
——— of the tragus, at its widest part.	0	3
Length of the forearm.	1	$11\frac{1}{2}$
——— of the longest finger	3	10

Length of the fourth finger.	2	6 $\frac{1}{2}$
— of the thumb	0	4
— of the tibia	0	9 $\frac{1}{2}$
— of the foot and claws	0	7
— of the <i>os calcis</i> , about.	0	6
Expanse of wings.	13	4
Length of the nose-leaf, taken behind	0	9 $\frac{1}{2}$
Total length of the skull, from front of nasal bones	0	8 $\frac{3}{4}$
Breadth across the orbits.	0	5
Length from the point of the middle upper incisor to the posterior edge of the last molar	0	4
Length of the lower jaw	0	6

Hab. The bottle from which this specimen was taken contained several West Indian species, in which the *Mormops Blainvillii* and the *Chilonycteris gymnonota* of Wagner were conspicuous. The latter is distinguished from other species of the genus by having the wing-membranes springing from the middle of the back, instead of the sides of the body; and there can be but little doubt that it is the *Pteronotus Davyi* of Dr. Gray. Of course Dr. Gray's specific name will take precedence of that given much later by M. Wagner, and the name of *Pteronotus* may be conveniently used to distinguish the species as a subgenus of *Chilonycteris*. It is probable that the specimen from which I have taken the foregoing description may have been received from the same locality as the *Mormops* and *Pteronotus*.

Obs.—Since the above was written, I have made a careful comparison of the skull of this singular Bat with that of several other species hitherto doubtfully placed with the Phyllostomidæ. The following are the results:—The genus *Schizostoma*, which is rather intimately allied to *Vampyrus*, bears also considerable resemblance to the genus *Macrotis* in the general conformation of the cranium and the lower jaw, and also in the very great similarity in the dentition. The form and size of the ears, too, in these genera are very similar. *Macrotis*, again, bears in several particulars an intimate relationship to the present genus *Lonchorhina*. More especially may be mentioned the length of the tail, which extends in both genera to the whole length of the interfemoral membrane, as in the genus *Vespertilio*, the considerable development of the ears, the size and freedom of the feet, and, perhaps more than all, the general contour of the cranium.

Pursuing the comparison, we find that *Lonchorhina* bears very considerable resemblance to *Chilonycteris* in the form of the anterior part of the cranium, in the number and relative size of the teeth of both jaws, and in the form of the lower jaw. Passing on from *Chilonycteris* to *Mormops*, the skull of the latter is seen to be an exaggeration of the former, having the facial part still more depressed, and the cerebral part still more elevated. The upper teeth in both these genera are very similar; and those of the lower jaw do not present any essential differences, the chief one being that in *Chilonycteris* the middle premolar is very much smaller than the corresponding one in *Mormops*, which, although smaller than those on

either side of it, is not minute. All the above-mentioned genera agree with each other in the presence of a fourth joint to the longest digit of the wing, and in fact must be said to bear considerable resemblance to each other in most particulars, saving in the degree of development of the tail and the existence or absence of a hastate nose-leaf. However, it may be said that those species which have not a nose-leaf resembling that of the ordinary *Phyllostomidæ* have nevertheless some cutaneous development about the face, nose, or mouth, and cannot be properly called simple-nosed species.

There is another very singular genus, of which I have before spoken in communications to the Society, and which I have regarded as allied to *Molossus*, but I have mentioned that it possesses four phalanges in the longest finger. I allude to the genus *Mystacina*, which has hitherto been found only in New Zealand. When preparing my paper on the Bats of that country, I had not examined either *Mormops* or *Chilonycteris*, but, on afterwards working out some West Indian Bats, was at once struck with certain resemblances between the latter and *Mystacina*. Without at present alluding to the details of structure which have induced me to arrive at this conclusion, I take this opportunity of stating that I now regard *Mystacina* as an aberrant form of *Phyllostomidæ*, coming after the several genera which have been compared above, but differing more from them than they do from each other.

MISCELLANEOUS.

On the Pith-Cells of Juncaceæ.
By GEORGE GULLIVER, F.R.S.

[Plate VII. figs. 13, 14.]

THERE are at least two kinds of pith-cells in Rushes. The pith may be either an actinenchyma or an ovenchyma; and these two forms are alone sufficient to distinguish some species, if not sections, of the order from others.

The pith-cells are branched, like the spokes of a wheel, in *Juncus effusus*, *J. conglomeratus*, and *J. glaucus*; while in *J. acutiflorus*, *J. squarrosus*, and *J. bufonius* the pith-cells are more or less rounded, commonly oval, and without any approach to the stellate form.

These observations are from my notes of 1860, which I hoped to have extended to more species; but, as an opportunity of doing so has not occurred, I have lately verified the observations anew on the plants above-named, and now give a sketch of the outlines of the cells, in the hope of directing attention to the difference in question, which is so remarkable, regular, and constant, that it may afford a good and easily recognized character.

PLATE VII. fig. 13. Pith-cells of *Juncus effusus*.
" " fig. 14. Pith-cells of *J. bufonius*.

Edenbridge, Oct. 19, 1863.